

CANADIAN BOARD OF EXAMINERS FOR PROFESSIONAL SURVEYORS

C5 – GEOSPATIAL INFORMATION SYSTEMS

March 2023

Note: This examination consists of 10 questions on 1 page.

Marks

Q.No

Time: 3 hours

Value Earned

1.	Define the following terms: a) Geographical information system b) Feature identifier c) Buffer zone d) Geodatabase e) Entity-relationship diagram (E/R diagram)	3 3 3 3 3	
2.	Define map projection and explain why map projection is important to GIS.	10	
3.	Describe relative merits and limitations of raster and vector data, in terms of data model and structure, data collection and storage, attribute handling, data processing and analysis, and output quality.	12	
4.	What is “address matching”? Why is address matching an important vector geoprocessing technique?	8	
5.	Aside from the traditional data collection methods, such as land surveying and photogrammetry, what are some recent approaches that allow quicker and more efficient collection of GIS data? Name and briefly describe at least three of these methods.	10	
6.	Define and compare local operation and focal operation in raster data processing. Give an example application for each of them.	10	
7.	Given two digital maps of a city: one shows landmarks, and the other shows restaurants. One of the attributes of the restaurants layer lists the type of food (e.g., Canadian, Chinese, Japanese, etc.). Suppose you want to find a Canadian restaurant within 1000 meters of Landmark A. Describe the steps that you will follow to complete the task, with a diagram showing your process (circle for data input and output, rectangle for operations, directed line for connections).	10	
8.	Using a simple diagram, explain the three basic elements of topological relationships in geographic data representation.	5	
9.	List and briefly describe the five main data quality indicators as included in most GIS data quality standards.	10	
10.	People argue about the impact of the web mapping services provided by the mainstream IT firms such as Google Maps, on the GIS development. What do you think? Include pros and cons.	10	
Total Marks:		100	